

**Instructor Information**

Name	Rick Wagner	E-mail address	<a href="mailto:rewagner@dmacc.edu">rewagner@dmacc.edu</a>
Phone number	515-965-7155	Fax number	515-964-6815
Office location	Building 3-West	Office hours	Mondays and Wednesdays 9:30 am to 11:00 am Tuesdays and Thursdays 1:00 pm to 2:30 pm

**Course Information**

Course title	Robotics		
Course number	ELT 721	Credits	3
Section number	1	CRN number	13051
Days & Time	8:00 am to 9:50 am Mondays and Wednesdays	Location	Building 3W room 7

Course description <http://www.dmacc.edu/courses/descriptions.htm>

**Corequisites**

**Course competencies**

During this course, the student will be expected to:

1. Identify by name all the parts on a robot.  
Identify the drive motor, linkage and specifications for each axis of motion on the arm  
Identify the major system elements in a robot system.
2. Connect and setup a robot and controller system.  
Identify the safety regions in a work cell.  
Identify the work volume.  
Assemble the interconnections between components of a robotic system.
3. Use the various functions on a teach pendant.  
Identify between command and arm control functions  
Teach points with a teach pendant.  
Manipulate a robot from its teach pendant.
4. Write programs that utilize robot I/O  
Interface the robot controller with peripheral equipment.  
Interface the robot controller to other intelligent machines.
5. Perform robot system maintenance  
Identify type and procedures for robotic maintenance  
Outline typical preventative maintenance schedules for robotic systems
6. Write, save and execute various upper level programs  
Write programs which measure the repeatability of each axis  
Write a material handling application program.  
Write a palletizing application program.  
Write programs used for basic decision loops.  
Write a program using the offset command.

**Important Dates**

Midterm	October 15,2014
Last Day to Drop	October 31, 2014

Final	To be arranged
<b>Textbooks &amp; Materials</b>	
Required textbooks	Robot Technology Fundamentals, Keramus, 1999.
Required materials	Writing utensil, Paper, Safety Glasses, thumb drive, appropriate dress for an electronics environment (long pants, and/or apron; closed-toe rubber sole shoes; minimize jewelry)
Software applications	
Software notice	"All the software used in this class is copyrighted; therefore, it is not for distribution, copying, or personal use. This software is the property of Des Moines Area Community College."
<b>Course Policies</b>	
Attendance	<p>Attendance is 10 percent of the final grade. I follow a curved scale for attendance as follows:</p> <p style="padding-left: 40px;">0 to 2 classes = 10%</p> <p style="padding-left: 40px;">3 classes = 5%</p> <p style="padding-left: 40px;">4 or more classes = 0%</p> <p>Show up and be mentally and physically capable of learning! Unannounced quizzes are possible at ANY TIME! Quizzes cannot be made up! Class may include company tours outside of the class times.</p>
Class Cancellation Policy	<p>In the event class is canceled, you should be emailed with your DMACC email address. You will be emailed as soon as possible but be aware that sometimes advanced warning just is not available.</p> <p>If I am not present during class start time, please text or call my cell phone number listed in this syllabus. If there is no answer, please check with the secretary in building 3 East or 3 West (sometimes substitutes will show up late). Do not assume after 5 or 10 minutes that class is canceled. There is no time limit that automatically cancels class.</p>

<p>Grading criteria</p>	<p>Your grade for the course is based on tests, homework exercises, quizzes and a comprehensive final. Tests will be weighted as 40% of the final grade. Quizzes, homework and participation combined will be 10% of the final grade. Labs will be 30% of the final grade. The final exam is weighted as 20% of the final grade. Labs will be graded not only on the lab itself, but also includes efficient use of class time, and being able to work with others.</p> <p>The final letter grades will be assigned based on the ranges:  100% - 90% = A  89% - 80% = B  79% - 70% = C  69% - 60% = D  Below 60% = F</p> <p>Plus and Minus grades (A-, B+, B-, C+, C-, D+, D-) will be awarded base on the final exam. If the final exam is one letter grade higher than the student's calculated grade, a plus will be added to the student's grade. If the final exam is one letter grade lower than the student's average, a minus will be added.</p> <p>The participation grade will include efficient use of class time, participations in discussions, refraining from disruptions in class, respect for others and equipment. Unannounced quizzes, a number of tests, and a final examination will be administered during the course of the semester. Test items will be selected from assignment sheets, lectures, reading assignments, handouts, reference material, and class discussion, Test items may be true - false, multiple choice, matching, short answer, and/or essay. If a student is not present the day of the test they must take the test at the academic achievement center.</p> <p>Unannounced quizzes may not be made up</p> <p>Working in groups is an excellent way to learn. Unless otherwise specified, groups may work together on homework, but each student must complete their own write up and state the members of the group collaborating. All homework must have a typed cover sheet.</p>
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Classroom conduct	<p>I reserve the right to have any student removed from the class for the remainder of the semester. It is very disrespectful to the instructor and to the other students (who want to learn without tiresome annoyances) if a disrespectful person stays in class. Weapons are not to be brought on campus. Loud or profane language, threats and or any type of violence or behavior that disrupts the educational environment is unacceptable and shall be dealt with according to DMACC Board Policy CM 1001, 2021. All students have a right to learn in a nonthreatening environment. Behavior that jeopardizes this right will not be tolerated.</p> <p>Cell phones shall not be used in the classroom. They disrupt the learning process. Please turn off your cell phone's ring prior to class. If you have an emergency call, please have the caller contact the general ATC number: 964-6288, or Campus Security: 964-6500, and you will be contacted by them. Pagers should also be turned off so as not to disrupt the class.</p> <p>Students who conduct themselves in a severe unprofessional manner will be given a failing grade. Students who interfere with the learning process of others or prevent a positive learning environment of the class will receive a lower grade as a result.</p>
Tests	<p>All materials (books, bags, notebooks etc.) are to be removed from desks or tables during tests. Keep them on the floor or an empty desk or table.</p> <p>Cell phones may not be used during exams! If you are found manipulating your cell phone during an exam, you will receive a zero for the test. If your cell phone rings during an exam, then you are done with the test. I will try to remind everyone of their cell phones before an exam, however, <u>you are responsible for remembering to shut off your cell phone during an exam.</u></p>
Missed exams	<p>You may only make up one exam, due to an excused absence. You should notify me of your absence prior to the regular schedule testing time. Failure to do so results in an unexcused absence at the exam cannot be made up.</p>
Missed exams	<p>You should notify me of your absence prior to the regularly scheduled testing time in order to determine an alternative testing time. Failure to do so results in an unexcused absence and <b>the exam cannot be made up and the resulting exam grade will be a zero.</b> Notify me of your absence by leaving a message on my office voicemail. Emails will not be accepted unless they are received at my computer before scheduled class.</p>
Late assignments	<p>Homework received one day late is worth 80% of the original value. (NOTE: One day may NOT be the next class time.) Homework received greater than one day late will not be accepted.</p>
Extra credit	TBD
Study expectations	<ul style="list-style-type: none"> <li>• <b>DO THE ASSIGNED AND ANY SUGGESTED PROBLEMS</b></li> <li>• <b>Talk to me before and any issue becomes a problem.</b></li> <li>• <b>Form and use study groups.</b></li> <li>• <b>Come prepared to think and actively participate in class.</b></li> </ul>

Academic dishonesty	<p><b>NOT COOL! This will be placed on your college transcript!</b></p> <p>Students involved in cheating or plagiarism will receive an F for the course. This also includes students who help the person cheating.</p> <p>“See DMACC Educational Services Procedures ES 262 VII. A. and B” for information on plagiarism, cheating, information about appeals procedures or reference publication that addresses this information in detail.”</p>
<b>DMACC Information Web Sites</b>	
DMACC home page	<a href="http://www.dmaccc.org/">http://www.dmaccc.org/</a>
Admissions & registration	<a href="http://www.dmaccc.org/potienti.htm">http://www.dmaccc.org/potienti.htm</a>
WebCT	<a href="http://webct.dmaccc.edu">http://webct.dmaccc.edu</a>
Student handbook	<a href="http://www.dmaccc.edu/handbook/">http://www.dmaccc.edu/handbook/</a>
Add/drop dates	<a href="http://www.dmaccc.edu/academiccal.htm">http://www.dmaccc.edu/academiccal.htm</a>
Refund policy	<a href="http://www.dmaccc.org/refund.htm">http://www.dmaccc.org/refund.htm</a>
<b>Support Services</b>	
<b>Accommodations</b>	“It is the p student w accommo 6850 voi
<b>Services for students with disabilities</b>	<p><a href="http://www.dmaccc.edu/student_services/disabilities.htm">http://www.dmaccc.edu/student_services/disabilities.htm</a></p> <p>Contact the special needs coordinator at <b>515-964-6850V</b>, <b>515-964-6809 TTY</b> or the counseling &amp; advising office on any campus for an Application for Accommodation.</p>
Academic & educational advising	<a href="http://www.dmaccc.org/student_services/academic_advising.htm">http://www.dmaccc.org/student_services/academic_advising.htm</a>
Career counseling	<a href="http://www.dmaccc.org/student_services/career_resource.htm">http://www.dmaccc.org/student_services/career_resource.htm</a>
Library	<p><a href="http://www.library.dmaccc.cc.ia.us/">http://www.library.dmaccc.cc.ia.us/</a></p> <p><b>Building 6, room 3</b>  Monday – Thursday 7:30 am to 9:00 pm  Friday – 7:30 am to 4:00 pm  Saturday – 8:00 am to 1:00 pm</p>
Academic Achievement Center	<p><a href="http://www.dmaccc.edu/web2000/student_services/academic_achievement_center.htm">http://www.dmaccc.edu/web2000/student_services/academic_achievement_center.htm</a></p> <p>Provides academic assistance for students on a drop-in basis. Also serves as a make-up testing center.</p> <p>515-964-6558 or 1-800-362-2127 ext. 6558</p> <p><b>Building 6, Room 20</b>  Monday – Thursday 8:00 am to 7:00 pm  Friday – 8:00 am to 2:30 pm  <b>NOTE:</b> Summer hours may vary</p>

Syllabus Addendum	<p>To access additional information related to DMACC policies and procedures that impact the classroom (i.e. use of technology, weather-related cancellations, classroom conduct, etc.), the DMACC student handbook, registration information (including add/drop dates and refund dates), student service information (including counseling and advising), the DMACC academic calendar, and campus-specific resources (i.e. Academic Achievement Center, library, computer, labs, etc.), go to <a href="https://go.dmacc.edu/handbook">https://go.dmacc.edu/handbook</a> and click “Syllabus Addendum” in the left navigation.</p> <p>If you do not have access to a computer and need a printed version of any of the information described above, contact your instructor.</p>
Disclaimer	
<p><b>“This syllabus is representative of materials that will be covered in this class; it is not a contract between the student and the institution. It is subject to change without notice. Any potential exceptions to stated policies and requirements will be addressed on an individual basis, and only for reasons that meet specific requirements. If you have any problems related to this class, please feel free to discuss them with me.”</b></p>	